DOCUMENT RESUME

ED 287 579 PS 016 893

AUTHOR Arcus, Doreen M.
TITLE Temperamental Stability as a Function of Change in Birth Order Status.
PUB DATE Apr 87
NOTE 7p.; Paper presented at the Biennial Meeting of the Society for Research in Child Development (Baltimore, MD, April 23-26, 1987).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Behavior Change; *Birth Order; Comparative Analysis; Day Care; *Infants; *Personality; Siblings; *Toddlers; Videotape Recordings
IDENTIFIERS Behavioral Stability; *First Born; *Only Children; Stability (Personal); Toddler Temperament Scale

ABSTRACT

As part of a study of mother-child interaction, 31 children were observed at 21 and 35 months of age to assess the influence of the birth of a sibling on the stability of temperament. All subjects were only children when they were surveyed at 21 months of age. By the time of the second observation, when subjects were 35 months old, the birth order status of 12 children changed from only child to firstborn, while 19 remained only children. Sibling and no sibling groups differed in day care attendance, with the sibling group spending less time in substitute care. All subjects were observed in their homes in a gift-giving task designed to elicit individual differences in behavioral inhibition. Videotapes of 5-minute behavior samples were scored for items such as latency of approach to the experimenter, retreats to the mother, and overtures to the experimenter. A report measure of inhibition was obtained from the approach subscale of the Toddler Temperament Scale, which mothers completed at each visit. Results indicated that temperamental continuity, specifically in the expression of behavioral inhibition, must be considered in the context of birth order and child care status. (RH)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED287579

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
X This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

Temperamental Stability as a Function of Change in Birth Order Status

Doreen M. Arcus
Harvard University

Biennial meeting, Society for Research in Child Development
Baltimore, MA; April 25, 1987

While studies of temperament have demonstrated stability of constructs, it has only been moderate; all studies have also documented change. Identifying influences in the relative stability of temperamental constructs is facilitated by viewing the child within his or her ecological system (Bronfenbrenner, 1979). Changes in salient contexts for the child--e.g., in the sibship or in childcare--place the child in what Bronfenbrenner has called an ecological transition, a period in which one might find change where one would otherwise expect stability.

Many have documented change in children's social behavior following the birth of a sibling (especially Dunn and Kendrick, 1983). Furthermore, Snow, Jacklin, and Macoby (1981) found differences in peer sociability as a function of birth order, specifically, that only children demonstrated more total social behavior than either first or later born children. Thus, there may be changes in the expression of behavioral inhibition following the birth of a sibling since, presumably, the firstborn children who were once onlyborn were also once more sociable. Furthermore, demographic trends suggest that changes in the sibship may co-occur with changes in childcare arrangements so that neither of these contexts should be considered in isolation.

Subjects: As part of a larger study of mother-child interaction, 31 children at 21, and again at 35, months of age were observed. All of these children were onlyborn at 21 months. By the 35 month observation, the birth order status of 12 children changed from only to firstborn following the birth of a sibling, and 19 remained only children. The two groups, sibling and no sibling, did not differ by sex, maternal education, or 35 month PPVT (Dunn, 1979). There were, however, significant differences in daycare; the sibling group spent less time in substitute care (t = 1.68, $p \leq .10$ at 21 months; t = 2.79, $p \leq .01$ at 35 months) and experienced more change in the interval (correlation of hours from 21 to 35 months: r = -.02 for the sibling group, r = .70 for the no sibling group; Z = -2.13, $p \leq .05$). Finally, the sibling group displayed less inhibition than the no sibling

PS 016893

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Doreen M. Arcus
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

BEST COPY AVAILABLE

group in their 21 month approach behavior (t = 1.72, $p \leq .10$).

Procedure: All children were observed in their homes at 21 and 35 months in a gift giving task (McCartney, 1983), designed to elicit individual differences in behavioral inhibition. In this task, an experimenter presented a brightly-wrapped package to the child, saying, "*Name*, look what I have for you!" Videotapes of the 5 minute behavior sample which followed were scored for a number of variables including such items as latency to approach the experimenter, retreats to the mother, and overtures to the experimenter. A report measure of inhibition was obtained from the approach subscale of the Toddler Temperament Scale (TTS; Fullard, McDevitt, and Carey, 1978) which mothers completed at each visit.

Results: Separate factor analyses conducted for all subjects at both points in time provided evidence for heterotypic continuity (Kagan, 1971) of an approach factor (approach to experimenter: r = .36, $p < .05$) between 21 and 35 months, as well as moderate stability (r = .31, $p \leq .10$) for a withdrawal (proximity to mother) factor. Reliability of TTS approach was predictably higher (r = .59, $p \leq .01$). The intercorrelation of behavior measures was moderate at 21 months, but insignificant at 35 months. Behavior and report did not correlate well at either time.

Autocorrelations on these factors were computed separately for each group (see Table 1). As predicted, the sibling group demonstrated less stability than the no sibling group in their approach behavior when the associated effects of daycare were partialled out; note that this effect held given several different controls for daycare differences. A more complete discussion, especially with regard to daycare findings, will be found in Arcus and McCartney (in preparation).

Examining the sibling group for the effects of sex and recency of the sibling's arrival yeilded one significant effect: a high positive correlation (r = .68, $p \leq .05$) between membership in a different sex dyad and approach behavior at 35 months. Splitting the sibling group into same and different sex dyad groups was confounded by the fact that all same sex dyads were female. As shown in Table 2, high positive correlations were found for firstborns in different sex dyads in the sibling group and for both males and females in the no sibling group; firstborns in same sex dyads, however, showed a high negative correlation for approach to experimenter from 21 to 35 months (r = -.932, $p \leq .10$), significantly lower than

firstborns in different sex dyads ($Z = -2.11$, $p \leq .05$).

Discussion: Behavioral measures in this study are consistent with those reported by other investigators to be salient during this age period (Garcia-Coll, Kagan, and Reznick, 1984). Patterns of change and stability are consistent with those of Snow et al, and with predictions based on social comparison theory, which posits that individuals tend to compare themselves to others who are similar to them (Festinger, 1954). Failure of these patterns to extend to maternal report may be explained via attribution theory (see Brown, 1986) in that the birth of the second child was incidental to the original purposes of this study; as such, mothers may have been reluctant to report changes in their children which could be attributed to a child-situation interaction rather than to the child alone. Finally, initial differences in inhibition between children whose mothers would soon introduce a sibling and those whose mothers would not, though tenative, do suggest a "child effect" in family planning strategies; similar findings have been reported in studies of rhesus monkeys (Simpson, Simpson, Hooley, and Zunz, 1981). In sum, these results provide compelling evidence that temperamental continuity, specifically in the expression of behavioral inhibition, must be considered in the context of birth order and child care status.

REFERENCES

Arcus, D. and McCartney, K. (In preparation) When baby makes four: Family influences in the stability of behavioral inhibition. To appear in J. S. Reznick (ed.) Perspectives on Behavioral Inhibition. Chicago: University of Chicago Press.

Bronfenbrenner, U. (1979) The ecology of human development: experiments by nature and design. Cambridge, MA: Harvard.

Brown, R. (1986) Social psychology: The second edition. New York: Wiley.

Dunn, J. and Kendrick, C. (1983) Siblings: Love, envy, and understanding. Cambridge, MA: Harvard.

Dunn, L.M. (1979) Peabody Picture Vocabulary Test--Revised. Circle Pines, MN: American Guidance Service.

Festinger, L. (1954) A theory of social comparison processes. Human Relations, 7, 117-140.

Fullard, W., McDevitt, S.C., and Carey, W.B. (1978) The Toddler Temperament Scale. Unpublished manuscript, Temple University, Department ofEducational Psychology, Philadelphia, PA.

Garcia-Coll, C., Kagan, J., and Reznick, J.S. (1984) Behavioral inhibition in young children. Child Development, 55, 1005-1019.

Kagan, J. (1971) Change and continuity in infancy. New York: Wiley.

McCartney, K. (1986) How children make their own language environments. Unpublished report, Harvard University.

Simpson, M.J.A., Simpson, A.E., Hooley, J., and Zunz, M. (1981) Infant-related influence on birth intervals in rhesus monkeys. Nature, 290, 49-51.

Snow, M.E., Jacklin, C.N., and Macoby, E. (1981) Birth-order differences in peer sociability at thirty three months. Child Development, 52, 589-595.

Table 1

Stability coefficients for behavioral and report indices of inhibition from 21 to 35 months by birth order groups.

	Zero-order r		
	Sibling (n=12)	No sibling (n=19)	Z
Approach to experimenter	.11	.65***	-1.60
Proximity to mother	-.29	.42*	-1.79*
TTS Approach	.69***	.58***	.45
	Partial r: Controlling for daycare change.		
Approach to experimenter	.08	.68***	-1.71*
Proximity to mother	-.26	.38*	-1.52
TTS Approach	.69***	.50**	.68
	Partial r: Controlling for daycare hours, 21 and 35 months.		
Approach to experimenter	.07	.70***	-1.72*
Proximity to mother	-.38	.61*	-1.56
TTS Approach	.83***	.64**	.93
	Partial r: Controlling for overall daycare.[1]		
Approach to experimenter	.06	.66***	-1.67*
Proximity to mother	-.32	.37*	-1.64
TTS Approach	.69***	.56**	.49

[1]Overall daycare is a composite measure of hours at both observations and change during the interval.

*p ≤ .10
**p ≤ .05
***p ≤ .01

Table 2

Stability coefficients for indices of inhibition from 21 to 35 months within the sibling group by same sex sibling dyad (all female) or different sex sibling dyad, and within the no sibling group by sex.

	Zero-order r					
	Sibling group by dyad			No sibling group by sex		
	Same sex (n=5)	Different sex (n=7)	z	Females (n=9)	Males (n=10)	z
Approach experimenter	-.86*	.67*	-2.33**	.75**	.60*	.50
TTS Approach	-.02	.77**	-1.48	.81***	.34	1.39
	Partial r: Controlling for overall daycare.					
Approach experimenter	-.932*	.64	-2.11**	.71**	.56	.37
TTS Approach	-.64	.48	1.11	.77**	.70**	.25

note. Insufficient variability in proximity to mother at 35 months for the computation of these statistics.

*p ≤ .10
**p ≤ .05
***p ≤ .01